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10/675,009	09/30/2003	Chien-Hsin Lee	INTCP001	4849
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JUNG-HUA KUO ATTORNEY AT LAW C/OINTELEVATE P. O. BOX 52050 MINNEAPOLIS, MN 55402			GREY, CHRISTOPHER P	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/675,009	Applicant(s) LEE ET AL.
	Examiner CHRISTOPHER P. GREY	Art Unit 2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

Status

- 1) Responsive to communication(s) filed on 27 December 2007.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-5 and 7-24 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-5 and 7-24 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-146/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 4, 5, 7, 8, 12, 15, 16, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Le Gouriellec et al. (US 2003/0112756), hereinafter referred to as Le Gouriellec.

Regarding Claim 1. Le Gouriellec discloses classifying (**para 0031 teaches a classifier for classifying**) each received packet in an IP/Ethernet (**para 0024 discusses Ethernet**) network into one of a plurality of quality of service (QoS) groups (**para 0032, where in profile and out of profile are 2 groups**) using information in a header of the packet (**para 0031**);

measuring and checking a traffic rate profile of the received packet against a corresponding service level agreement (**para 0032, meter checks traffic profiles..**);

marking the packet as one of an in profile packet and an out of profile packet (**page 3, para 0032, identifies packets as in-profile or out of profile, and para 0033, marker marks packet**);

a CAR packet is an in profile packet if the CAR packet is within the corresponding SLA (**para 0037, all traffic within eh CR is left unmarked**) so that the CAR a packet receives congestion free service (**para 0039, unmarked traffic is protected even when congestion is encountered**);

and wherein a CAR packet is marked as an out of profile packet if the CAR packet exceeds the SLA (**para 0037, all traffic above the CR but below the CR+ER is marked to be dropped in case of congestion**) and is one of provided with the best effort services (**para 0039, causing all marked packets to be dropped, where best effort service is defined as performing services where there is no guarantee, hence dropping the marked packets is equivalent to there being no guarantee, therefore dropping packets is equivalent to best effort services**);

performing packet buffer memory reservation to guarantee memory space for an in profile CAR packets (**para 0025, always available due to end to end bandwidth reservation in the queues**).

Regarding Claim 4. Le Gouriellec discloses wherein said measuring and checking is via a token bucket model token (**para 0032, token bucket meter**).

Regarding Claim 5. Le Gouriellec discloses a meter (fig 2, 44), which is a logical device (**para 0030, logical device equivalent to hardware**).

Regarding Claim 7. Le Gouriellec discloses wherein said measuring and checking facilities in controlling CAR packets (**para 0025 discusses committed rate traffic**), input rate limiting packets and output rate limiting packets (**para 0025, ER**

traffic indicative of input and output rate packets and para 0034 discloses traffic shaping, indicative of input and output rate packets).

Regarding Claim 8. Le Gouriellec discloses wherein IRL and ORL in profile packets receive best effort service (**para 0037, all traffic above the CR but below CR +ER is marked to be dropped in case of congestion**) and wherein IRL and ORL out of profile packets are dropped (**para 0038, traffic over CR + ER is discarded**).

Regarding Claim 12. Le Gouriellec discloses a control pipe (**see fig 2**) configured to classifying (**para 0031 teaches a classifier for classifying**) each received packet in an IP/Ethernet (**para 0024 discusses Ethernet**) network into one of a plurality of quality of service (QoS) groups using information in a header of the packet (**para 0031**).

Le Gouriellec discloses the control pipe being further configured for measuring and checking a traffic rate profile of the received packet against a corresponding service level agreement (**para 0032, meter checks traffic profiles..**).

Le Gouriellec discloses marking the packet as one of an in profile packet and an out of profile packet (**page 3, para 0032, identifies packets as in-profile or out of profile, and para 0033, marker marks packet**).

Le Gouriellec discloses a transmit queue in communication with the control pipe (**fig 5, 106, queue**).

Le Gouriellec discloses performing packet buffer memory reservation to guarantee memory space for an in profile CAR packets (**para 0025, always available due to end to end bandwidth reservation in the queues**).

Regarding Claim 15. Le Gouriellec discloses wherein said measuring and checking is via a token bucket model token (para 0032, token bucket meter). Le Gouriellec discloses wherein said measuring and checking facilities in controlling CAR packets (**para 0025 discusses committed rate traffic**), input rate limiting packets and output rate limiting packets (**para 0025, ER traffic indicative of input and output rate packets and para 0034 discloses traffic shaping, indicative of input and output rate packets**).

Regarding Claim 16. Le Gouriellec discloses a meter (fig 2, 44), which is a logical device (**para 0030, logical device equivalent to hardware**).

Regarding Claim 17. Le Gouriellec discloses wherein IRL and ORL in profile packets receive best effort service (**para 0037, all traffic above the CR but below CR +ER is marked to be dropped in case of congestion**) and wherein IRL and ORL out of profile packets are dropped (**para 0038, traffic over CR + ER is discarded**).

Regarding claim 18. Le Gouriellec discloses and wherein a CAR packet is marked as an out of profile packet if the CAR packet exceeds the SLA (**para 0037, all traffic above the CR but below the CR+ER is marked to be dropped in case of congestion**) and is one of provided with the best effort services and dropped (**para 0039, causing all marked packets to be dropped, where best effort service is defined as performing services where there is no guarantee, hence dropping the marked packets is equivalent to there being no guarantee, therefore dropping packets is equivalent to best effort services**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9, 10, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gouriellec et al. (US 2003/0112756) in view of Duncan et al. (US 7237012), hereinafter referred to as Duncan.

Regarding Claim 9, Le Gouriellec does not specifically disclose wherein said performing buffer memory reservation is via static memory reservation wherein memory space is statically partitioned between CAR packets and non-CAR packets.

Duncan discloses wherein said performing buffer memory reservation is via static memory reservation wherein memory space is statically **partitioned (Col 7 lines 14-16, static portion and memory area)** between CAR packets and non-CAR packets (**Le Gouriellec teaches car and non car packet data being stored in a BW reservation scheme, see para 0025).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the invention disclosed by Le Gouriellec as taught by Duncan, since stated in Col 2 lines 17-19 that such a modification will allow it to be easier to detect QOS classifiers.

Regarding Claim 10. Le Gouriellec does not specifically disclose wherein said performing buffer memory reservation is via dynamic memory reservation, wherein packet buffer memory for non-CAR packets is dynamically allocated, and wherein a push out mechanism is employed for non CAR packets.

Duncan discloses wherein said performing buffer memory reservation is via dynamic memory reservation (**Le Gouriellec, para 0025, end to end bandwidth reservation in the queues**), wherein packet buffer memory for non-CAR packets is dynamically allocated (**Col 7 lines 18-20, dynamic portion for storing SLA data**), and wherein a push out mechanism is employed for non CAR packets (**wherein a drop packet mechanism is applied to non-committed rate packets para 0028, discards traffic**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the invention disclosed by Le Gouriellec as taught by Duncan, since stated in Col 2 lines 17-19 that such a modification will allow it to be easier to detect QOS classifiers.

Regarding Claim 19. Le Gouriellec does not specifically disclose wherein said performing buffer memory reservation is via static memory reservation wherein memory space is statically partitioned between CAR packets and non-CAR packets.

Duncan discloses wherein said performing buffer memory reservation is via static memory reservation wherein memory space is statically **partitioned (Col 7 lines 14-16, static portion and memory area)** between CAR packets and non-CAR packets (**Le**

Gouriellec teaches car and non car packet data being stored in a BW reservation scheme, see para 0025).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the invention disclosed by Le Gouriellec as taught by Duncan, since stated in Col 2 lines 17-19 that such a modification will allow it to be easier to detect QOS classifiers.

Regarding Claim 20, Le Gouriellec does not specifically disclose wherein said performing buffer memory reservation is via dynamic memory reservation, wherein packet buffer memory for non-CAR packets is dynamically allocated, and wherein a push out mechanism is employed for non CAR packets.

Duncan discloses wherein said performing buffer memory reservation is via dynamic memory reservation (**Le Gouriellec, para 0025, end to end bandwidth reservation in the queues**), wherein packet buffer memory for non-CAR packets is dynamically allocated (**Col 7 lines 18-20, dynamic portion for storing SLA data**), and wherein a push out mechanism is employed for non CAR packets (**wherein a drop packet mechanism is applied to non-committed rate packets para 0028, discards traffic**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the invention disclosed by Le Gouriellec as taught by Duncan, since stated in Col 2 lines 17-19 that such a modification will allow it to be easier to detect QOS classifiers.

3. Claims 2, 3, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gouriellec et al. (US 2003/0112756) in view of Li et al. (US 20070086337), hereinafter referred to as Li.

Regarding Claim 2. Le Gouriellec discloses a control pipe (**shown in fig 1 and para 0025, node queues along the LSP pipe**).

Le Gouriellec does not specifically disclose wherein said classifying of the packet is performed by a control pipe via a content addressable memory.

Li discloses classification of a packet being performed via a content addressable memory (para 0074)

It would have been obvious to one of the ordinary skill in the art at the time of the invention to associate the content addressable memory disclosed by Li, with the classifier disclosed by Le Gouriellec. The motivation for this combination is to perform classification and look ups.

Regarding Claim 3. The combined teachings of Le Gouriellec and Li disclose a CAM for classification.

The combined teachings of Le Gouriellec and Li do not specifically disclose a multi-bank ternary CAM.

It would have been obvious to one of the ordinary skill in the art that the CAM disclosed by the combined teachings of Le Gouriellec and Li is not limited to a basic CAM, and may be specified such as that of a multi-bank ternary CAM depending on a designer's preference.

Regarding Claim 13. Le Gouriellec discloses a control pipe (**shown in fig 1 and para 0025, node queues along the LSP pipe).**

Le Gouriellec does not specifically disclose wherein said classifying of the packet is performed by a control pipe via a content addressable memory.

Li discloses classification of a packet being performed via a content addressable memory (para 0074)

It would have been obvious to one of the ordinary skill in the art at the time of the invention to associate the content addressable memory disclosed by Li, with the classifier disclosed by Le Gouriellec. The motivation for this combination is to perform classification and look ups.

Regarding Claim 14. The combined teachings of Le Gouriellec and Li disclose a CAM for classification.

The combined teachings of Le Gouriellec and Li do not specifically disclose a multi-bank ternary CAM.

It would have been obvious to one of the ordinary skill in the art that the CAM disclosed by the combined teachings of Le Gouriellec and Li is not limited to a basic CAM, and may be specified such as that of a multi-bank ternary CAM depending on a designer's preference.

4. Claims 11, and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gouriellec et al. (US 2003/0112756) in view of Chen et al. (US 6226685), hereinafter referred to as Chen.

Regarding Claim 11. Le Gouriellec does not specifically disclose wherein a separate multicast queue and a separate multicast threshold are defined for multicast packets, and wherein a multicast counter facilitates in tracking multicast packets.

Chen discloses wherein a separate multicast queue (**fig 3, 309**) and a separate multicast threshold (**Col 4, lines 47-50 when the counter value is expired**) are defined for multicast packets, and wherein a multicast counter (**Col 4 lines 14-17, generate a counter value**) facilitates in tracking multicast packets.

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the invention of Le Gouriellec as taught by Chen, since stated in the abstract that such a modification will improve the efficiency of BW utilization.

Regarding Claim 21. Le Gouriellec does not specifically disclose wherein a separate multicast queue and a separate multicast threshold are defined for multicast packets, and wherein a multicast counter facilitates in tracking multicast packets.

Chen discloses wherein a separate multicast queue (**fig 3, 309**) and a separate multicast threshold (**Col 4, lines 47-50 when the counter value is expired**) are defined for multicast packets, and wherein a multicast counter (**Col 4 lines 14-17, generate a counter value**) facilitates in tracking multicast packets.

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the invention of Le Gouriellec as taught by Chen, since stated in the abstract that such a modification will improve the efficiency of BW utilization.

Regarding Claim 22. Le Gouriellec discloses classifying each received packet in an IP/Ethernet (**para 0024 discusses Ethernet**) network into one of a plurality of quality of service (QoS) groups using information in a header of the packet (**para 0031**).

measuring and checking a traffic rate profile of the received packet against a corresponding service level agreement (**para 0032, meter checks traffic profiles..**).

marking the packet as one of an in profile packet and an out of profile packet (**page 3, para 0032, identifies packets as in-profile or out of profile, and para 0033, marker marks packet**).

for each profile packet pushing out queued non CAR packet if at least one of corresponding packet buffer memory and transmit queue is full (**para 0039**).

queuing CAR packets into transmit queue memory (**para 0041**).

For each out of profile packet, providing best effort service (**para 0039, causing all marked packets to be dropped, where best effort service is defined as performing services where there is no guarantee, hence dropping the marked packets is equivalent to there being no guarantee, therefore dropping packets is equivalent to best effort services**).

Le Gouriellec does not specifically disclose for a multicast packet, measuring and checking a multicast traffic rate profile of the received multicast packet using a corresponding multicast counter, marking each multicast packet as one of an in profile

or out of profile packet, for each profile packet pushing out queued non CAR packet if at least one of corresponding packet buffer memory and transmit queue is full.

Chen discloses wherein a separate multicast queue (**fig 3, 309**) and a separate multicast threshold (**Col 4, lines 47-50 when the counter value is expired**) are defined for multicast packets, and wherein a multicast counter (**Col 4 lines 14-17, generate a counter value**).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the invention of Le Gouriellec as taught by Chen, since stated in the abstract that such a modification will improve the efficiency of BW utilization.

Regarding Claim 23, Le Gouriellec discloses dropping an out of profile packet (para 0028, discarded), where the preceding claim addresses multicasting packets.

Regarding Claim 24, Le Gouriellec discloses marking and queuing an out of profile CAR packet as a non CAR packet (para 0037).

Response to Arguments

5. Applicant's arguments filed on 12/27/07 have been fully considered but they are not persuasive.

The applicant argued that the rejection of claims 1, 4-8, 12, 15, 16 and 18 do not teach the following claimed limitation, "if the CAR packet exceeds the SLA and is provided with best effort service".

The examiner maintains that the claimed limitation interpreted within its broadest sense is disclosed within the rejection of the claims, wherein a best effort service is

defined as a network service that does not provide any guarantees that data is delivered or that a user is given a guaranteed QOS. Le Gouriellec discloses wherein a CAR packet is marked as an out of profile packet if the CAR packet exceeds the SLA (**para 0037, all traffic above the CR but below the CR+ER is marked to be dropped in case of congestion**) and is one of provided with the best effort services (**para 0039, causing all marked packets to be dropped, where best effort service is defined as performing services where there is no guarantee, hence dropping the marked packets is equivalent to there being no guarantee, therefore dropping packets is equivalent to best effort services**). The examiner notes that the discard of these classified packets results in no guarantees on the network, hence the discard experienced is a best effort service according to the broadest interpretation of the definition.

Further arguments with respect to claims 2, 3, 9, 10, 13, 14 and 20 rely on the information addressed above, and the response to these arguments are contained above.

6. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER P. GREY whose telephone number is (571)272-3160. The examiner can normally be reached on 10AM-7:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Moe Aung can be reached on (571)272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher P Grey/
Examiner, Art Unit 2616

/Aung S. Moe/
Supervisory Patent Examiner, Art
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